

REMARKS/ARGUMENTS

Published Application 20030007103

It is noted that the rejected application was published under an incorrect family name. Applicant's (triple) first name is "Allen Le Roy", and his family name is "Limberg". "Allen L. R. Limberg" or "Allen L. Limberg" may be used to fit the USPTO's conventional format.

A great number of scanning errors were noted in the published application and have been noted.

Objections to Claims 6 - 19

Claims 6 - 19 are objected to as being dependent upon a rejected base claim, but were indicated to be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims. It is noted that the Office Action accorded no patentable weight to the limitations of claims 4 and 5.

Claims 6 and 14 are currently amended to independent form including all limitations of base claim 1 and intervening claim 4. The limitation of claim 5 that "said first amplifier is arranged for driving said transmission line without short-circuiting said transmission line for frequencies outside a frequency range occupied by said amplified first intermediate-frequency signal" is amended to more definite and perhaps broader form. Claims 6 and 14 are currently amended to specify "said first amplifier being arranged for driving said transmission line without short-circuiting said transmission line for frequencies outside a frequency range occupied by said amplified first intermediate-frequency signal, which frequencies will appear in electrical signals to be received by said tuner via said transmission line and include each modulation frequency of said carrier modulated by said remote control information signal."

If operating power is sent up the transmission line to the tuner as the application describes, this may present a very high load admittance at the power frequency (e.g., DC or 60 Hz). Applicant is concerned whether this might be viewed as short-circuiting the transmission line at frequencies outside the frequency range occupied by said amplified first intermediate-

frequency, unintentionally causing such embodiments of his invention to fall outside the scope of claims 6 - 19.

Claims 6 and 14 as currently amended are believed by applicant still to be patentable, and their allowance is respectfully requested.

Claim Rejections - 35 USC § 102

Claims 1, 3-5 are rejected under 35 U.S.C. 102(b) as being anticipated by U. S. patent No. 4,608,710 (Sigiura), which rejection is traversed.

The rejection of claims 1, 3-5 under 35 U.S.C. 102(b) is not properly formulated, since anticipation is not based solely on Sigiura's disclosure. In making his rejection the Examiner asserts that the Sigiura apparatus is intended to receive either digital or analog television signals, but no apparent support for this assertion is found in U. S. patent No. 4,608,710. Digital television broadcasting was developed in the 1990's, well after the 1985 filing date of U. S. patent No. 4,608,710. The apparatuses shown in FIGURES 6 - 10 of this patent clearly are not intended for receiving digital television signals, since fine tuning of the second local oscillator 90 or 390 relies on reference signal derived from FM audio carrier. (See columns 9 and 10 of patent No. 4,608,710.) Customarily, digital television signals do not have separate video and audio carriers. Furthermore, Sigiura's microwave carriers themselves appear to be frequency modulated, and there is no evidence of record that digital television signals can be satisfactorily received when transmitted using frequency-modulated carriers.

Since intention is only of concern as to the issue of obviousness, but not to the issue of anticipation, proper formulation of rejection under 35 U.S.C. 102(b) would have required that the Sigiura apparatus be alleged to have inherent capability of receiving digital TV signals.

Claim 1

In column 1, lines 10-12, of his patent Sigiura specifies: "This invention relates to apparatus for receiving broadcast **microwave** signals from broadcasting satellites." The preamble of claim 1 is amended to limit its scope to a "tuner for digital television signals within

very-high-frequency or ultra-high-frequency bands prescribed for terrestrial television broadcast transmitters".

Claim 1 is further amended to call for "first electrically controlled front-end circuitry having an input port to which the radio-frequency signals received by said antenna are applied and having an output port for supplying a first intermediate-frequency signal with prescribed first carrier frequency as a frequency-conversion response to the one of radio-frequency signals within said very-high-frequency or ultra-high-frequency bands that is selected for reception by said first electrically controlled front-end circuitry". This element is not found in the Sigiura microwave reception apparatus for satellite transmissions. The front-end circuitry for the Sigiura microwave reception apparatus operates at frequencies well above the VHF or UHF radio-frequency television signals transmitted over the air from terrestrial broadcast transmitters. The physical structures of front-end circuitry for the two sorts of tuner differ from each other, so as to accommodate the different operating frequencies.

These amendments to claim 1 and similar amendment to claim 4 should completely dispel any issue of claims 1 and 3 - 5 being anticipated by Sigiura, so the issue becomes whether currently amended claims 1 and 3 - 5 are patentable under 35 U.S.C. 103 in view of U. S. patent No. 4,608,710 (Sigiura).

If a proposed modification would render the prior art invention being modified unsatisfactory for its originally intended purpose, then there is not suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (CA FC 1984); MPEP § 2143.01. Modifying the Sigiura microwave reception apparatus so the electrically controlled front-end circuitry selects VHF or UHF radio-frequency DTV signals for conversion to a first intermediate-frequency signal, rather than selecting satellite transmission frequencies for conversion to a first intermediate-frequency signal, renders Sigiura's apparatus unsatisfactory for its originally intended purpose of receiving broadcast **microwave** signals from broadcasting satellites.

"In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." *In re Oetiker*, 977

F.2d 1443, 24 USPQ2d 1443, 1445 (CA FC 1992); MPEP § 2141.01(a). As noted above, U. S. patent No. 4,608,710 does not concern apparatus for receiving digital television, more particularly apparatus for receiving digital television signals transmitted over the air from terrestrial television broadcast transmitters as VHF or UHF radio-frequency signals. Even though the claim 1 tuner uses some of the same engineering principles used in the Sugiura microwave reception apparatus, the claim 1 tuner is a new and distinctively different product deserving of commercial protection.

The principal problem that concerned the applicant was easing the multipath reception problems presented to the in-channel equalization filtering in a receiver for the digital television (DTV) signal, a problem not dealt with at all by U. S. patent No. 4,608,710. The reflection problems on the transmission line between the antenna and the digital television receiver are considerably simplified if the line only has to terminate properly for one or other small number of intermediate-frequency DTV signals, rather than for a larger number of VHF and UHF radio-frequency DTV signals. There is no evidence that one of ordinary skill in the art of DTV reception would have looked to U. S. patent No. 4,608,710 for help in easing the multipath reception problems presented to the in-channel equalization filtering during DTV signal reception. Multipath is not a particularly significant problem when receiving broadcast microwave signals from broadcasting satellites, since antennas are installed so the primary signal path is line-of-sight from the satellite. Therefore, in-channel equalization is not as significant a problem in receiving broadcast microwave signals from broadcasting satellites as in receiving VHF and UHF radio-frequency DTV signals transmitted over the air from terrestrial television broadcast transmitters, where multipath caused by reflections from structures near the reception site is a commonplace problem.

The general similarity of applicant's structures to Sugiura's apparatus is noted with hindsight after applicant has taught how to mitigate significantly the multipath reception problems presented to the in-channel equalization filtering used in DTV signal reception from terrestrial transmitters. Because of the so-called "cliff effect" in DTV signal reception, these problems are apt to cause DTV signal reception to fail catastrophically, particularly in urban areas where there are many strong reflections from man-made objects such as buildings and moving vehicles. Multipath distortion causes ghosting in analog TV signals, but not catastrophic

failure in reception. The obviousness of an invention should be determined by analysis of the difficulty that the inventive problem presents to one of ordinary skill in the art, at a time before the solution to the problem is garnered from the applicant's own teaching.

While Sugiura talks about "equalization" in his *Background of Invention*, he addresses the prior-art practice of using filters to adjust the power of different channels to be more the same. This type of across-the-band equalization is a different concern than in-channel equalization of a single DTV signal, which is done to reduce intersymbol interference. Across-the-band equalization is a practice used in conjunction with wideband low-noise amplifiers, a practice used both for microwave reception from satellite and for lower-frequency reception from VHF and UHF terrestrial DTV transmitters. Across-the-band equalization using standard filtering works fairly well for microwave reception from satellite since the various TV signals are transmitted at powers that are scaled to loss over the line-of-sight transmission path shared by all the channels transmitted from the same satellite.

Across-the-band equalization has to be customized for each reception site when receiving from VHF and UHF terrestrial DTV transmitters. Across-the-band equalization will be increasingly required because of the TV spectrum becoming closer packed to eliminate taboo spectrum allocations and because of DTV transmission power being raised. Many of the reception sites located between DTV transmitters at different locations will have weak-signal TV channels with strong-signal TV channels closeby in frequency. Applicant teaches that AGCing the front-end circuitry in the tuner at the antenna can automatically provide customized across-the-band equalization. This can eliminate many of the intermodulation and cross-modulation problems arising from mixer overloading because of strong adjacent channels.

Claim 2

Claim 2 is rejected under 35 U.S.C. 103 as being unpatentable over U. S. patent No. 4,608,710 (Sugiura), which rejection is traversed.

Claim 2 claims a combination, and the question of patentability is whether the prior art suggests the claimed combination, rather than whether the elements of the combination themselves are previously known (which is the usual case). Official Notice that circuitry for

demodulating and digitizing intermediate frequency signal is known in the art is bare of any reference to the context in which this is done and in no way suggests a combination with other elements, let alone the particular combination claimed by applicant. Sigiura provides no enabling suggestion of modifying his invention to include circuitry for demodulating and digitizing intermediate frequency signal (or the "demodulation and analog-to-digital conversion circuitry" recited in claim 2, as currently amended). The Office Action performs a hindsight reconstruction of applicant's claim 2 invention using applicant's own disclosure as blueprint for the reconstruction.

Prior art patents are references only for what they clearly disclose or suggest; it is not proper use of a patent as a reference to modify its structure to one which prior art references do not suggest. *In re Randol & Redford*, 425 F2d. 772, 57 P.A. 1085, 165 USPQ 586, 588 (CCPA 1970). This court has repeatedly cautioned against employing hindsight by using the applicant's disclosure as a blueprint to reconstruct the invention out of isolated teachings in the prior art. See, e.g., *Grain Processing v. American Maize-Products Co.*, 840 F.2d 902, 907, 5 USPQ2d 1788, 1792 (Fed. Cir. 1988). *In re Kramer*, 18 USPQ2d 1415, 1416 (CA FC 1991). The question under 103 is whether the subject matter as a whole would have been obvious. *In re Van Venrooy*, 56 CCPA 1199, 1203 n.4, 412 F.2d 250, 253 n.4, 162 USPQ 37, 39 n.4 (1969). References may be combined to establish anticipation, but they must suggest the combination itself and not merely all the elements which make up combination. *Minnesota Mining and Mfg. Co. v. Johnson & Johnson*, 179 USPQ 216 (ND Ill E. Div. 1973). "Each-element-is-old" approach to patentability issue is improper. *Amstar Corp. v. Envirotech Corp., et al.*, 221 USPQ 649, 730 F.2d 1476 (CA FC 1983).

The Office Action performs presents an obvious to try argument, but fails to consider whether Sigiura teaches that the use of a downconverter at the VHF or UHF antenna can mitigate the problems of digital TV reception under multipath conditions. Disregard for the unobviousness of the results of "obvious to try" experiments disregards the "invention as a whole" concept of § 103. *In re Dien*, 54 CCPA 1027, 371 F.2d 886, 152 USPQ 550 (1967), *In re Wiggins*, 55 CCPA 1356, 397 F.2d 356, 158 USPQ 199 (1968), *In re Antonie*, 559 F.2d 618, 195 USPQ 6,8 (CCPA 1977).

Claim 3

The rejection of claim 3 under 35 U.S.C. 102(b) is traversed on the further grounds that Sigiura's second conversion section 62 is located on the input end of the transmission line 20, rather than its output end. Consequently, the connection of the tuner to the electrically controlled frequency-conversion apparatus by the transmission line that claim 3 specifies does not obtain in Sigiura's apparatus.

Claims 4 and 5

Original claim 4 is not anticipated by U. S. patent No. 4,608,710 in the way contemplated by the Examiner. Sigiura sends up a selection signal to the signal frequency-conversion device 27, which selection signal consists of a different single frequency for each channel to be tuned. Note that Sigiura's selection signal is supplied to the frequency converter 28 in FIGURE 4 and to the corresponding frequency converter 228 in FIGURE 6. In FIGURE 6 the frequency converter 228 is in the first conversion section 61, not in the second conversion section 62. The cascade connection of lowpass filters 84 and 86 provide a bypass path for the selection signal through the second conversion section 62. (See lines 21 - 27 in column 8 of patent No. 4,608,710.) The highpass filter 87 and bandpass filter 88 block the selection signal from being applied to the demodulator 89. Sigiura's demodulator 89 is used to develop a fine-tuning signal for the oscillator 90 or 390, not to supply first remote control information for selecting the radio-frequency signal to be received. (This observation also applies to consideration of the patentability of new claim 24.)

The phase comparator 39 or 339 might have been viewed by a potential infringer of original claim 4 as a demodulator, with the DC signal sent to the oscillator 37 or 337 being viewed as "said first remote control information. Claim 4 is currently amended to specify the demodulator "having a first output port for supplying a reproduction of said remote control information signal recovered from demodulating said carrier modulated by said remote control information signal". Sigiura's phase comparator 39 or 339 does not reproduce the modulation of the remote control information signal, however, but is determined by the error in the frequency control loop.

Further, claim 4 is currently amended to call for "electrical control circuitry connected for converting said demodulated remote-control signal information to control signals for tunable radio-frequency amplifier and local oscillator components of said first electrically controlled front-end circuitry, which said control signals impart said first remote control information to said first electrically controlled front-end circuitry". Sigiura's U. S. patent No. 4,608,710 does not disclose such an element, and his radio-frequency amplifiers do not have remotely controlled tuning.

Claim 5 is amended to more definite form, better to particularly point out the subject matter which the applicant regards as his invention. Claim 5 still calls for "said first amplifier being arranged for driving said transmission line without short-circuiting said transmission line for frequencies outside a frequency range occupied by said amplified first intermediate-frequency signal", but further specifies that those "frequencies will appear in electrical signals to be received by said tuner via said transmission line and include each modulation frequency of said carrier modulated by said remote control information signal". The amendment is made for the same reasons similar current amendment is made in claims 6 and 14.

Claims 20 and 21

New claim 20, which depends from claim 5, is of narrowed scope compared to original claim 2 dependent from original claim 1. New claim 21, which depends from claim 5, is of narrowed scope compared to original claim 3 dependent from original claim 1. Claims 20 and 21 are patentable for at least the same reasons as original claims 2 and 3 were. Additionally, claims 20 and 21 call for "circuitry for generating said remote-control information signal, said remote control information signal descriptive of at least said first remote control information", which Sigiura's U. S. patent No. 4,608,710 does not have. (Claim 4, from which claims 20 and 21 ultimately depend, specifies "said one of the radio-frequency signals being selected for reception responsive to first remote control information".) Claims 20 and 21 also call for "a modulator for generating said carrier modulated by said remote control information signal and coupling said carrier modulated by said remote control information signal to said transmission line", which patent No. 4,608,710 does not have.

Claims 23-25

New claim 22 dependent from claim 1 contains allowable subject matter for the same reasons as original claim 6, the Office Action indicating that the limitations of claims 4 and 6 were accorded no patentable weight by the Examiner.

New claim 23 dependent from claim 1 specifies "first electrically controlled front-end circuitry" as shown in FIGURE 1 of 09/757,019. This front-end circuitry is capable of providing customized across-the-band equalization and at the same time avoiding many intermodulation and cross-modulation problems. These IM and XM problems arise in the downconverters of prior-art DTV receivers when the mixer overloads because of strong adjacent channels, a condition that is of little, if any, concern in microwave reception from satellite. The RF and IF amplifiers in Sugiura's downconverters are not indicated to be controlled-gain types. Sugiura's U. S. patent No. 4,608,710 does not show "an envelope detector connected for developing an envelope detector response to said first intermediate-frequency signal". U. S. patent No. 4,608,710 does not show "automatic gain control signal generation circuitry connected for responding to said envelope detector response to generate said automatic gain control signal applied to said radio-frequency amplifier circuitry".

New claims 24 and 25 dependent from claim 23 are patentable for reasons similar to those advanced for claims 4 and 5, amongst others.

Claims 26 - 31

A situation that applicant is faced with in claiming his invention is that the various elements of the combination may be manufactured by different entities, with the elements assembled by an individual at his home. Some of the individual manufacturers may not be in the United States. Naturally, applicant desires claims that are directly infringed, rather than indirectly infringed, by the manufacturer of individual apparatus used in the combination.

Claim 26 distinguishes from Sugiura's U. S. patent No. 4,608,710 in having "a modulator having an input port connected for receiving said remote control information signal as a modulating signal and having an output port for supplying said modulated signal, the modulation of which said modulated signal is determined responsive to said remote control information signal and at times is composed of several simultaneously occurring

frequencies". Claim 27 distinguishes further over Sigiura by specifying that "said modulator is of a type providing a multiple-tone type of modulation, so at times said modulated signal comprises several tones coupled simultaneously to said proximal end of said transmission line".

Claim 28 specifies that "said remote control information signal comprises channel identifier signal concerning channel selection of said television signal". Applicant's claim 26 apparatus is useful for transmitting other remote control information, such as antenna steering information, to the site of the reception antenna.

New claims 29 - 32 are directed to the apparatuses that incorporate applicant's remote control apparatus. When evaluating the further patentability of these claims over claims 26 and 28, the Examiner should be careful to take into consideration the novelty of the electrically controlled front-end circuitry used with each of the claimed apparatuses being located at a remote location near the VHF or UHF reception antenna and connected to the claimed apparatus via a transmission line.

Conclusion

The (941)-625-7024 phone number is a temporary number for applicant while his home, damaged in Hurricane Charley, is being reconstructed. Sometime in the spring of 2005 the phone number for the undersigned applicant will again be (941)-624-4302.

Respectfully submitted,



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January 18, 2005

Attachments: Transmittal Form
Fee Transmittal Form & Credit Card Payment Form
Copy of Fee Transmittal Form & Patent Application Fee Determination Record
Supplemental Declaration of Inventor (2pp., duplicates)